



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,434	06/06/2005	Tony Day	18133-213 NATL	7437

30623 7590 11/20/2006

MINTZ, LEVIN, COHN, FERRIS, GLOVSKY
AND POPEO, P.C.
ONE FINANCIAL CENTER
BOSTON, MA 02111

EXAMINER

KOSANOVIC, HELENA

ART UNIT	PAPER NUMBER
----------	--------------

3749

DATE MAILED: 11/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/509,434

Applicant(s)

DAY, TONY

Examiner

Helena Kosanovic

Art Unit

3749

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 52-96 is/are pending in the application.
- 4a) Of the above claim(s) 79-96 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 52-78 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 September 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>3/14/2006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The Examiner considered enclosed substitute drawings, page 1-10, and Abstract filed 9/28/2004. Regarding replaced substitute specification, the examiner notes only specification originally filed 9/28/2006 and no substitute pages 1-49 of the specification has been filed and therefore only originally filed specification is considered in further examination.

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 90-96 are drawn to a system for exhausting air from an equipment enclosure and returning air to an air conditioner, classified in class 454, subclass 231.
- II. Claims 52-78 are drawn to an enclosure for containing an equipment, classified in class 454, subclass 184.
- III. Claims 79-89 are drawn to method claims, classified in class 454, subclass 370.

2. Inventions in group I and II are related as combination and subcombination.

Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for

Art Unit: 3749

patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed such as equipment 16 for cooling, because the cabinet itself includes the mechanism for cooling. The subcombination has separate utility such as cooling the room.

The examiner has required restriction between combination and subcombination inventions. Where applicant elects a subcombination, and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the allowable subcombination will be examined for patentability in accordance with 37 CFR 1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

3. Inventions I and III are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product. See MPEP § 806.05(h). In the instant case the process for using the product as claimed can be practiced with another materially different product such as cooling of clean room through floor diffusers.

4. Inventions II and III are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product. See MPEP § 806.05(h). In the instant case the process for using the product as claimed can be practiced with another materially different product such as cooling of clean room through floor diffuser.

5. Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

6. During a telephone conversation with Shane Hunter on 11/2/2006 a provisional election was made without traverse to prosecute the invention of group II, claims 52-78. Affirmation of this election must be made by applicant in replying to this Office action. Claims 79-96 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention. Claims 52-78 stayed.

Drawings

7. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

8. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the dry-break connector, claim 67 as well as runner for supporting heat exchanger when withdrawn from the cabinet, claim 66 must be shown or identified with a reference character or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure

is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 52-55, 57 and 74-75 are rejected under 35 U.S.C. 102(b) as being anticipated by Ledbetter 5,826,432.

Ledbetter teaches an invention as claimed: a substantially sealed airtight cabinet (fig. 4) sized for housing vertical array of heat-producing units 162 having an exterior shell 109, 190, 151, an interior divider wall 160 disposed inside the cabinet wherein the shell and the divider wall provide an equipment chamber 164, 163, with a first plenum 190

Art Unit: 3749

and a first inlet 172 defined by the divider as an at least one substantially vertical slot, admitting the air uniformly over a substantial vertical length (fig. 4); a first outlet 1 (see paragraph 16 bellow of this Office Action, wherein examiner marked originally not marked first outlet 1 with darkened arrow for clarification) wherein the first plenum communicates with the openings for exhausting substantially all of the flow through the array in substantially horizontal direction (fig. 4); a second plenum 191 defined between the chamber shell and the array for receiving the air that has passed through the array having a second inlet 2 (see paragraph 16 bellow of this Office Action, wherein examiner marked originally not marked second inlet 2 with darkened arrow for clarification) and second outlet 3 (see paragraph 16 bellow of this Office Action wherein examiner marked originally not marked second outlet 3 with darkened arrow for clarification) defined by the divider wall such that the air is directed horizontally (fig. 4) from equipment chamber 164,163; a heat transfer means 180 (col. 6, ll. 21-25) disposed in the cabinet for carrying heat away from the cabinet; a door 210 (fig. 7) configured to provide selective access to the heat-producing units based on at least one of an environmental compatibility inside and outside the cabinet (fig. 11A), when the enclosure around the cabinet is closed (col. 9. ll. 47-63) wherein the doors have independent locks (fig. 11A).

10. Alternatively, claims 52 and 56 are rejected under 35 U.S.C. 102(b) as being anticipated by Ledbetter 5,826,432.

Ledbetter teaches a cabinet as discussed above. However, regarding the limitation of the first plenum, inlet and outlet, Applicant's claims 52 and 56 are also rejected based

Art Unit: 3749

on the consideration of the first inlet, first air plenum and first air outlet as shown in paragraph 16 of this Office Action. First inlet 1 described as first outlet in discussion above, with first air plenum 1' and first outlet 1" wherein the first inlet extends substantially a full vertical extent of at least one of the array and the first plenum.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 58-63 and 68-73 rejected under 35 U.S.C. 103(a) as being unpatentable over Ledbetter 5,826,432 in view of Fujimoto 5,952,842.

Ledbetter teaches an invention as discussed above and further: a mechanism 173,180 for cooling and recirculation of the air between mechanism chamber 191 (fig. 4) and equipment chamber 163,164, wherein the shell and divider wall are configured to direct the air to the mechanism that may have at least one fan (fig. 16) positioned downstream from the fan wherein the flow of the air through equipment chamber 163,164 is substantially parallel to and opposed to the flow of the air through mechanism chamber 191 (fig. 4); at least one door 701a, 701b (fig. 17) in vertical upright wall of the cabinet configured to provide access to mechanism chamber 191 independently of access to

Art Unit: 3749

equipment chamber 163, 164 since rack is movable and doors are on opposite sides, wherein independent doors have independent locks (figs . 17 and 3). Having a heat exchanger positioned upstream of the fan is considered to be a design choice to person of ordinary skill in the art. Applicant has not disclosed that the position of a heat exchanger provides an advantage, is used for particular purpose or solves a stated problem. One of ordinary skill in the art would have expected Applicant's invention to perform equally well with heat exchanger upstream or down stream from said fan as long as heat exchanger performs its function of exchanging the heat.

Ledbetter is silent about fan and heat exchanger that can be arranged in substantially horizontal arrangement and thus providing substantially horizontal airflow.

Fujimoto teaches the cabinet 10 for cooling boards 83 by heat exchanger 54 and couple of fans 35 that provide the circulation of the air in vertical (fig. 4, col. 4, ll. 12-19) or horizontal (fig. 5, col. 4, ll. 41-52) direction depending of position of the fans. Having a circulation in horizontal or vertical plane is specifically discussed in Fujimoto, as being an obvious matter of a design choice and depends of a position of the fans-heat exchanger orientation in order to produce the desired cooling flow. Positioning fan and heat exchanger in vertical position in order to produce circulation in vertical plane, or in a horizontal position in order to produce circulation in a horizontal plane would have been an obvious mater of a design choice (MPEP 2144.04). One ordinary skill in the art would expected Applicant's invention to perform equally well with fan positioned in vertical or horizontal plan (as suggested in Fujimoto), as long as fan and heat

Art Unit: 3749

exchanger perform the same function of cooling and transferring the air from one place to another.

12. Claim 64 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ledbetter 5,826,432 in view of Fujimoto 5,952,842 and further in view of Jones 6,104,003.

Ledbetter in view of Fujimoto teaches an invention as discussed above but is silent about a fan with non-return valve.

Jones teaches electronic cabinet for cooling electronic equipment having a plurality of fans 80 equipped with a back draft damper/non-return valve to prevent recirculation of cooling air through any fans 80 that are not in use (col. 4, ll. 37-47).

It would have been obvious to one of ordinary skill in the art to have Ledbetter in view of Fujimoto cabinet modified with the Jones back draft damper/non-return valve attached to the plurality of fans in order to prevent recirculation of cooling air through any of the fans that are not in use (col. 4, ll. 37-47).

13. Claims 65-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ledbetter 5,826,432 in view of Fujimoto 5,952,842 and further in view of Ward 3,387,648.

Ledbetter in view of Fujimoto teaches an invention as discussed above but is silent about replicable heat exchanger mounted on runners when withdrawn from the cabinet.

Ward teaches an extendible drawer chases/runner which carries the cooling unit to permit inspection of cooling unit (col. 2, ll. 19-21).

Art Unit: 3749

It would have been obvious to one of ordinary skill in the art to have the Ledbetter in view of Fujimoto invention modified with the Ward chasses/runner unit in order to expect and repair the unit and thus eliminating excess ducts (col. 1, ll. 63-65 and col. 2, ll. 19-21).

14. Claim 67 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ledbetter 5,826,432 in view of Fujimoto 5,952,842 and further in view of Rose 6,302,147.

Ledbetter in view of Fujimoto teaches an invention as discussed above but is silent about dry-break connectors.

Rose teaches a fluid conduit-coupling device with coupling or uncoupling pairs (col. 1, ll. 5-8) via dry-break connectors (col. 1, ll. 29-31).

It would have been obvious to one of ordinary skill in the art to have the Ledbetter in view of Fujimoto invention modified with the Rose quick-connect/disconnect dry-break connectors in order to provide quick connection and disconnection with substantially no introduction of ambient air into the process fluid (col. 2 ll. 24-27).

15. Claims 76-78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ledbetter 5,826,432 in view of Fujimoto 5,952,842 and further in view Applicant's admitted Prior art figure 1.

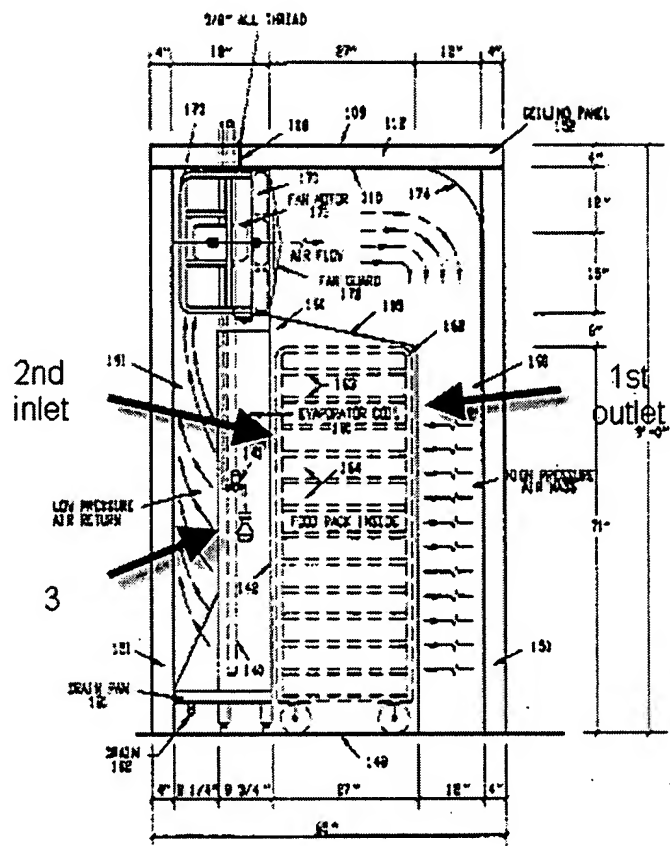
Art Unit: 3749

Ledbetter in view of Fujimoto teaches an invention as discussed above but is silent about an outer enclosure with external panels around the cabinet, an air conditioner between the cabinet and outer enclosure.

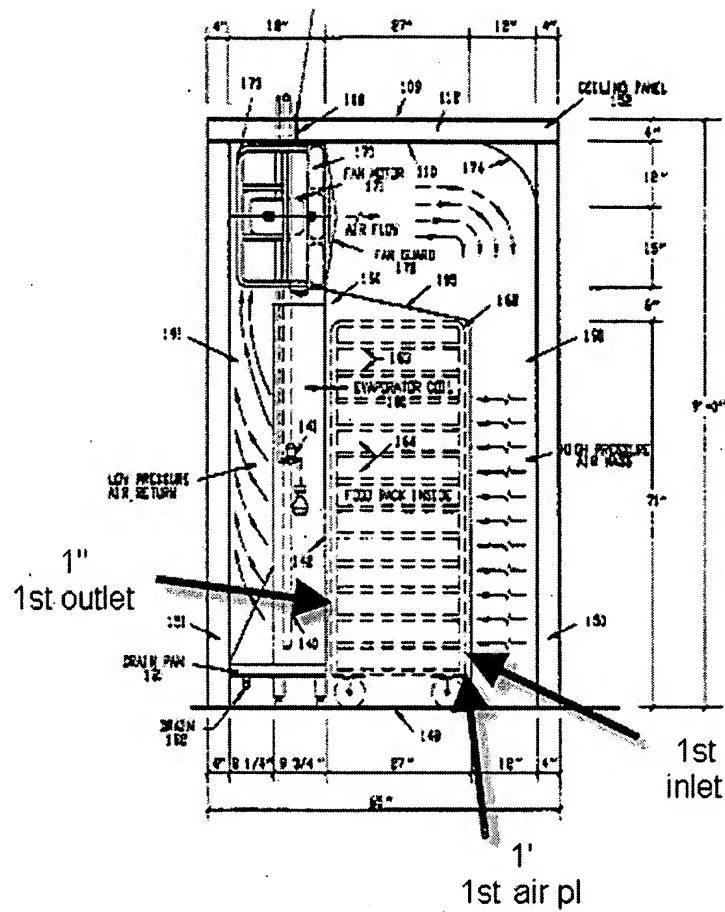
Applicant's admitted prior art (fig. 1) teaches the outer enclosure 4, 3, 5 with external panel 7 and 2, and air conditioner 16 between outer enclosure and the cabinet.

It would have been obvious to one of ordinary skill in the art to have the Ledbetter in view of Fujimoto apparatus within Applicant's admitted prior art enclosure and air conditioner in order to provide ventilation of the equipment inside the cabinet (spec. page 6, ll. 13-34 through page 8, ll.1-27).

16. Examiner marked originally unmarked elements with darkened arrows for clarification.



(fig. 4 of Ledbetter)



(Alternatively fig. 4 of Ledbetter)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helena Kosanovic whose telephone number is

Art Unit: 3749


(571)272-9059. The examiner can normally be reached on 8:30-5:00, Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Josiah Cocks can be reached on 571-272-4874. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Helena Kosanovic
Examiner
Art Unit 3749
103106

Helena Kosanovic


Josiah Cocks
Acting SPE
Art Unit 3749